

Amendments to the Claims:

This listing of claims will replace all prior versions and listings of claims in the application:

Listing of Claims:

1. (currently amended): A process for cleaning substrates comprising:
placing the substrates to be cleaned in a vessel wherein the vessel is not pressurized;
adding at least one organic solvent to the vessel;
cleaning the substrates for a time sufficient to clean the substrates with the [an] organic solvent in the absence of liquid carbon dioxide;
removing a portion of the organic solvent from the vessel;
adding at least one pressurized fluid solvent to the vessel;
removing the pressurized fluid solvent from the vessel; and
removing the substrates from the vessel;
wherein, when the pressurized fluid solvent is liquid carbon dioxide, the liquid carbon dioxide is at a subcritical condition.
2. (original): The process of claim 1 wherein the organic solvent comprises a cyclic terpene.
3. (original): The process of claim 2 wherein the cyclic terpene:
is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;
has a specific gravity of greater than approximately 0.800;
has a dispersion Hansen solubility parameter of between $13.0 \text{ (MPa)}^{1/2}$ and $17.5 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $0.5 \text{ (MPa)}^{1/2}$ and $9.0 \text{ (MPa)}^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between $0.0 \text{ (MPa)}^{1/2}$ and $10.5 \text{ (MPa)}^{1/2}$.

4. (original): The process of claim 3 wherein the cyclic terpene further:
has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.
5. (original): The process of claim 4 wherein the cyclic terpene is selected from a group including α -terpene isomers; pine oil; α -pinene isomers; d-limonene; and mixtures thereof.
6. (original): The process of claim 1 wherein the organic solvent comprises a halocarbon.
7. (original): The process of claim 6 wherein the halocarbon:
is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;
has a specific gravity of greater than approximately 1.100;
has a dispersion Hansen solubility parameter of between $10.0 \text{ (MPa)}^{1/2}$ and $17.0 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $0.0 \text{ (MPa)}^{1/2}$ and $7.0 \text{ (MPa)}^{1/2}$; and
has a hydrogen bonding Hansen solubility parameter of between $0.0 \text{ (MPa)}^{1/2}$ and $5.0 \text{ (MPa)}^{1/2}$.
8. (original): The process of claim 7 wherein the halocarbon further:
has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.

9. (original): The process of claim 8 wherein the halocarbon is selected from a group including chlorinated hydrocarbons; fluorinated hydrocarbons; brominated hydrocarbons; and mixtures thereof.

10. (original): The process of claim 1 wherein the organic solvent comprises a glycol ether.

11. (original): The process of claim 10 wherein the glycol ether:
is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;
has a specific gravity of greater than approximately 0.800;
has a dispersion Hansen solubility parameter of between $13.0 \text{ (MPa)}^{1/2}$ and $19.5 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $3.0 \text{ (MPa)}^{1/2}$ and $7.5 \text{ (MPa)}^{1/2}$; and
has a hydrogen bonding Hansen solubility parameter of between $8.0 \text{ (MPa)}^{1/2}$ and $17.0 \text{ (MPa)}^{1/2}$.

12. (original): The process of claim 11 wherein the glycol ether further:
has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.

13. (original): The process of claim 12 wherein the glycol ether is selected from a group including monoethylene glycol ether; diethylene glycol ether; triethylene glycol ether; monopropylene glycol ether; dipropylene glycol ether; tripropylene glycol ether; and mixtures thereof.

14. (original): The process of claim 1 wherein the organic solvent comprises a polyol.

15. (original): The process of claim 14 wherein the polyol:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.920;

has a dispersion Hansen solubility parameter of between $14.0 \text{ (MPa)}^{1/2}$ and $18.2 \text{ (MPa)}^{1/2}$;

has a polar Hansen solubility parameter of between $4.5 \text{ (MPa)}^{1/2}$ and $20.5 \text{ (MPa)}^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between $15.0 \text{ (MPa)}^{1/2}$ and $30.0 \text{ (MPa)}^{1/2}$.

16. (original): The process of claim 15 wherein the polyol further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

17. (original): The process of claim 16 wherein the polyol contains two or more hydroxyl radicals.

18. (original): The process of claim 1 wherein the organic solvent comprises an ether.

19. (original): The process of claim 18 wherein the ether:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between $14.5 \text{ (MPa)}^{1/2}$ and $20.0 \text{ (MPa)}^{1/2}$;

has a polar Hansen solubility parameter of between $1.5 \text{ (MPa)}^{1/2}$ and $6.5 \text{ (MPa)}^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between $5.0 \text{ (MPa)}^{1/2}$ and $10.0 \text{ (MPa)}^{1/2}$.

20. (original): The process of claim 19 wherein the ether further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

21. (original): The process of claim 20 wherein the ether contains no free hydroxyl radicals.

22. (original): The process of claim 1 wherein the organic solvent comprises an ester of glycol ethers.

23. (original): The process of claim 22 wherein the ester of glycol ethers:
is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;
has a specific gravity of greater than approximately 0.800;
has a dispersion Hansen solubility parameter of between $15.0 \text{ (MPa)}^{1/2}$ and $20.0 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $3.0 \text{ (MPa)}^{1/2}$ and $10.0 \text{ (MPa)}^{1/2}$; and
has a hydrogen bonding Hansen solubility parameter of between $8.0 \text{ (MPa)}^{1/2}$ and $16.0 \text{ (MPa)}^{1/2}$.

24. (original): The process of claim 23 wherein the ester of glycol ethers further:
has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.

25. (original): The process of claim 1 wherein the organic solvent comprises an ester of monobasic carboxylic acids.

26. (original): The process of claim 25 wherein the ester of monobasic carboxylic acids:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between $13.0 \text{ (MPa)}^{1/2}$ and $17.0 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $2.0 \text{ (MPa)}^{1/2}$ and $7.5 \text{ (MPa)}^{1/2}$; and
has a hydrogen bonding Hansen solubility parameter of between $1.5 \text{ (MPa)}^{1/2}$ and $6.5 \text{ (MPa)}^{1/2}$.

27. (original): The process of claim 26 wherein the ester of monobasic carboxylic acids further:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.

28. (original): The process of claim 1 wherein the organic solvent comprises a fatty alcohol.

29. (original): The process of claim 28 wherein the fatty alcohol:
is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;
has a dispersion Hansen solubility parameter of between $13.3 \text{ (MPa)}^{1/2}$ and $18.4 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $3.1 \text{ (MPa)}^{1/2}$ and $18.8 \text{ (MPa)}^{1/2}$; and
has a hydrogen bonding Hansen solubility parameter of between $8.4 \text{ (MPa)}^{1/2}$ and $22.3 \text{ (MPa)}^{1/2}$.

30. (original): The process of claim 29 wherein the fatty alcohol further:
has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.

31. (original): The process of claim 30 wherein, in the fatty alcohol, the carbon chain adjacent to the hydroxyl group contains at least five carbon atoms.

32. (original): The process of claim 1 wherein the organic solvent comprises a short chain alcohol.

33. (original): The process of claim 32 wherein the short chain alcohol:
is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;
has a specific gravity of greater than approximately 0.800;
has a dispersion Hansen solubility parameter of between $13.5 \text{ (MPa)}^{1/2}$ and $18.0 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $3.0 \text{ (MPa)}^{1/2}$ and $9.0 \text{ (MPa)}^{1/2}$; and
has a hydrogen bonding Hansen solubility parameter of between $9.0 \text{ (MPa)}^{1/2}$ and $16.5 \text{ (MPa)}^{1/2}$.

34. (original): The process of claim 33 wherein the short chain alcohol further:
has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.

35. (original): The process of claim 34 wherein, in the short chain alcohol, the carbon chain adjacent to the hydroxyl group contains no more than four carbon atoms.

36. (original): The process of claim 1 wherein the organic solvent comprises a siloxane.

37. (original): The process of claim 36 wherein the siloxane:
is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;
has a specific gravity of greater than approximately 0.900;
has a dispersion Hansen solubility parameter of between $14.0 \text{ (MPa)}^{1/2}$ and $18.0 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $0.0 \text{ (MPa)}^{1/2}$ and $4.5 \text{ (MPa)}^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between $0.0 \text{ (MPa)}^{1/2}$ and $4.5 \text{ (MPa)}^{1/2}$.

38. (original): The process of claim 37 wherein the siloxane:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

39. (original): The process of claim 1 wherein the organic solvent comprises a hydrofluoroether.

40. (original): The process of claim 39 wherein the hydrofluoroether:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 1.500;

has a dispersion Hansen solubility parameter of between $12.0 \text{ (MPa)}^{1/2}$ and $18.0 \text{ (MPa)}^{1/2}$;

has a polar Hansen solubility parameter of between $4.0 \text{ (MPa)}^{1/2}$ and $10.0 \text{ (MPa)}^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between $1.5 \text{ (MPa)}^{1/2}$ and $9.0 \text{ (MPa)}^{1/2}$.

41. (original): The process of claim 40 wherein the hydrofluoroether:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

42. (original): The process of claim 1 wherein the organic solvent comprises an aliphatic hydrocarbon.

43. (original): The process of claim 42 wherein the aliphatic hydrocarbon:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.700;
has a dispersion Hansen solubility parameter of between $14.0 \text{ (MPa)}^{1/2}$ and $17.0 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $0.0 \text{ (MPa)}^{1/2}$ and $2.0 \text{ (MPa)}^{1/2}$; and
has a hydrogen bonding Hansen solubility parameter of between $0.0 \text{ (MPa)}^{1/2}$ and $2.0 \text{ (MPa)}^{1/2}$.

44. (original): The process of claim 43 wherein the aliphatic hydrocarbon:
has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.

45. (original): The process of claim 1 wherein the organic solvent comprises an ester
of dibasic carboxylic acids.

46. (original): The process of claim 45 wherein the ester of dibasic carboxylic acids:
is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5
and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.900;
has a dispersion Hansen solubility parameter of between $13.5 \text{ (MPa)}^{1/2}$ and $18.0 \text{ (MPa)}^{1/2}$;
has a polar Hansen solubility parameter of between $4.0 \text{ (MPa)}^{1/2}$ and $6.5 \text{ (MPa)}^{1/2}$; and
has a hydrogen bonding Hansen solubility parameter of between $4.0 \text{ (MPa)}^{1/2}$ and $11.0 \text{ (MPa)}^{1/2}$.

47. (original): The process of claim 46 wherein the ester of dibasic carboxylic acids:
has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and
has a flash point greater than 100 degrees Fahrenheit.

48. (original): The process of claim 1 wherein the organic solvent comprises a
ketone.

49. (original): The process of claim 48 wherein the ketone:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.800;

has a dispersion Hansen solubility parameter of between $13.0 \text{ (MPa)}^{1/2}$ and $19.0 \text{ (MPa)}^{1/2}$;

has a polar Hansen solubility parameter of between $3.0 \text{ (MPa)}^{1/2}$ and $8.0 \text{ (MPa)}^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between $3.0 \text{ (MPa)}^{1/2}$ and $11.0 \text{ (MPa)}^{1/2}$.

50. (original): The process of claim 49 wherein the ketone:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

51. (original): The process of claim 1 wherein the organic solvent comprises an aprotic solvent that contains no dissociable hydrogens.

52. (original): The process of claim 51 wherein the aprotic solvent:

is soluble in carbon dioxide between 600 and 1050 pounds per square inch and between 5 and 30 degrees Celsius;

has a specific gravity of greater than approximately 0.900;

has a dispersion Hansen solubility parameter of between $15.0 \text{ (MPa)}^{1/2}$ and $21.0 \text{ (MPa)}^{1/2}$;

has a polar Hansen solubility parameter of between $6.0 \text{ (MPa)}^{1/2}$ and $17.0 \text{ (MPa)}^{1/2}$; and

has a hydrogen bonding Hansen solubility parameter of between $4.0 \text{ (MPa)}^{1/2}$ and $13.0 \text{ (MPa)}^{1/2}$.

53. (original): The process of claim 52 wherein the aprotic solvent:

has an evaporation rate of lower than 50 (based on n-butyl acetate = 100); and

has a flash point greater than 100 degrees Fahrenheit.

54. (original): The process of claim 1 wherein the pressurized fluid solvent is densified carbon dioxide.

55-108 (previously withdrawn)